I Claim:

1. A method of erasure decoding of acknowledgement (ACK)/negative acknowledgement (NACK) feedback information, comprising:

detecting a state of received ACK/NACK feedback information for associated sent data based on at least one threshold derived using an objective function, the objective function including at least a first term representing an affect on data throughput for at least one possible type of error in detecting a state of the received ACK/NACK feedback information.

2. The method of claim 1, wherein the possible type of error is missed detection of a NACK.

3. The method of claim 2, wherein the first term represents a cost of an average number of total bits to be retransmitted if a NACK is missed in detection.

4. The method of claim 3, wherein the first term includes a weight variable representing a cost of a false detection of a NACK.

5. The method of claim 3, wherein the first term is defined as,

$$C_f N_f P_{missed=detection}$$

where C_f is the throughput cost of falsely detecting a Nack as an Ack, N_f is the number of bits of the missed detected packet, and $P_{missed=detection}$ is the probability of the missed detection.

6. The method of claim 1, wherein the objective function includes a second term representing an affect on data throughput if the state of the received ACK/NACK feedback information is correctly detected.

7. The method of claim 6, wherein the second term includes a weight variable representing a cost of correct detection of the state of the received ACK/NACK feedback information.

8. The method of claim 6, wherein the second term includes a throughput variable representing average data throughput.

9. The method of claim 8, wherein a value of the throughput variable is based on a probability that the ACK/NACK information is detected to represent an ACK.

10. The method of claim 8, wherein a value of the throughput variable is based on a probability that the ACK/NACK information is detected to represent a NACK.

11. The method of claim 8, wherein a value of the throughput variable is based on a probability that the ACK/NACK information is detected to represent an erasure.

12. The method of claim 6, wherein the second term is defined as,

$$-C_c D$$

where ($-C_c$) is the throughput cost of correctly detecting an Ack, and D is an average data throughput.

13. A method of erasure decoding of acknowledgement (ACK)/negative acknowledgement (NACK) feedback information, comprising:

detecting a state of received ACK/NACK feedback information for associated sent data using at least one threshold derived based on an affect on data throughput for at least one possible type of error in detecting a state of the received ACK/NACK feedback information.

14. The method of claim 13, wherein the possible type of error is missed detection of a NACK.

15. The method of claim 14, wherein the affect on data throughput is expressed in terms of a cost of an average number of total bits to be retransmitted if a NACK is missed in detection.

16. The method of claim 1, wherein the threshold is further derived based on an affect on data throughput if the state of the received ACK/NACK feedback information is correctly detected.

17. The method of claim 16, wherein the affect on data throughput if the state of the received ACK/NACK feedback information is correctly detected is expressed as a negative cost of the data throughput if the state of the received ACK/NACK feedback information is correctly detected.

18. A method of erasure decoding of acknowledgement (ACK)/negative acknowledgement (NACK) feedback information, comprising:

optimizing erasure thresholds for erasure decoding Ack/Nack feedback information based on HARQ throughput performance accounting for throughput cost of retransmissions from at least one higher layer protocol caused by missed detection of a Nack.

19. A method of wireless communication comprising:

employing an objective function in determining at least one of an ACK, NACK and erasure, the objective function accounting for at least an affect on data throughput in response to at least one error type.

20. The method of claim 19, wherein the error type is missed detection of a NACK.

21. The method of claim 19, wherein the objective function further accounts for an affect on data throughput if the state of the received ACK/NACK feedback information is correctly detected.